

# Field at BPM 1H05A And 1H05B during G2P|GEP

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# The FZ Magnet

FZ is same as BZ but 1.7" separation rather than 1.5".

J (A/cm <sup>2</sup> )	BdL (kG-cm)	CentralField (kG)	EffectiveLength (cm)	I (Amps)
100	464.059	2.321	199.970	133.32
130	603.271	3.017	199.970	173.32
175	812.060	4.061	199.967	233.32
200	928.017	4.641	199.964	266.65
250	1159.790	5.800	199.950	333.31
275	1275.582	6.380	199.941	366.64
306	1419.042	7.098	199.929	407.97
325	1506.874	7.537	199.921	433.30
350	1622.293	8.115	199.909	466.63
375	1737.487	8.692	199.894	499.96

Courtesy to J. Benesch

# Location of The BPMs

Surveyed on 03/14/ 2012.

Beam = 2.254 GeV

Target Field at 2.5T

Distance to FZ2 center:

BPM 1H05A = 170.7 cm

BPM 1H05B = 197.1 cm

		Coordinates WRT G2P target (mm)		
run	name	x	y	z
5	ITV1H05	-0.6	-139.6	4415.5
5	MFZ1H05B	0.2	-220.2	2663.0
5	IHP1H05	-0.9	-82.6	814.3
5	IPM1H05A	-0.7	-98.0	955.9
5	IPM1H05B	-1.0	-69.5	691.9

More surveys can be found here:

<http://hallaweb.jlab.org/experiment/g2p/survey/>

# Snapshot of The Field Map

TargetField in Tesla(Hall B Coil, 5T), in Coil Coordinate System

z	r	Bz	Br	Btot(T)
69.000	0.000	0.19305	0.00000	0.19305
70.000	0.000	0.18515	0.00000	0.18515
95.000	0.000	0.07537	0.00000	0.07537
96.000	0.000	0.07306	0.00000	0.07306

FZ magnet in Gauss (J=306A/cm<sup>2</sup>), Coil Coordinate System

x	y	z	Bx	By	Bz (Gauss)
0.000	0.000	170.000	0.24	0.04	-0.00
0.000	0.000	171.000	0.18	0.03	-0.00
0.000	0.000	197.000	-0.30	0.13	-0.00
0.000	0.000	198.000	-0.32	0.13	0.00

Conclusion:

FZ field at BPMA is less than  $4 \times 10^{-4}$  of the target field. Can be ignored.